

WE CLAIM:

1. Apparatus for processing data, said apparatus comprising:
 - (i) a register bank having a plurality of registers and operable to store data words to be processed;
 - (ii) processing logic operable in response to a multi-word data transfer instruction to transfer a plurality of data words between respective registers within said register bank and respective storage locations within a data memory; and
 - (iii) tracing logic triggered by detection of a predetermined trace initiating condition to commence tracing operation generating a trace data stream of trace data part way through said multi-word data transfer instruction whereby a subset of transfers of said plurality of data words are traced within said trace data stream.
2. Apparatus as claimed in claim 1, wherein all transfers of said multi-word data transfer instruction subsequent to said detection of said predetermined trace initiating condition are traced within said trace data stream.
3. Apparatus as claimed in claim 2, wherein said predetermined trace initiating condition is triggered from a triggering transfer with subsequent transfers giving rise to trace data even though they do not meet said predetermined trace initiating condition.
4. Apparatus as claimed in claim 3, wherein said triggering transfer gives rise to transfer trace data within said trace data stream and said subsequent transfers give rise to place holder trace data within said trace data stream, said place holder trace data being more compact and giving less information regarding a transfer than said transfer trace data.
5. Apparatus as claimed in claim 3, wherein said triggering transfer gives rise to transfer trace data within said trace data stream with at least one subsequent transfer giving rise to trace data even though it does not meet said predetermined trace initiating condition and at least one subsequent transfer giving rise to place holder trace data within said trace data stream, said place holder trace data being more compact and giving less information regarding a transfer than said transfer trace data.

6. Apparatus as claimed in claim 1, wherein said trace initiating condition is one or more of:

(i) a data word transfer using a predetermined register within said register bank;

(ii) a data word transfer using a predetermined memory address within a memory; and

(iii) a data word transfer of a data word having a predetermined value.

7. Apparatus as claimed in claim 1, wherein transfers of data words performed simultaneously by said processing logic and that are to be traced are written sequentially within said trace data stream by said tracing logic.

8. Apparatus as claimed in claim 7, wherein said multi-word data transfer instruction specifies a transfer order and said tracing logic writes said transfers that are to be traced in accordance with said transfer order.

9. A method of processing data, said method comprising the steps of:

(i) storing data words to be processed within a register bank having a plurality of registers;

(ii) in response to a multi-word data transfer instruction, transferring a plurality of data words between respective registers within said register bank and respective storage locations within a data memory; and

(iii) when triggered by detection of a predetermined trace initiating condition, commencing tracing operation generating a trace data stream of trace data part way through said multi-word data transfer instruction whereby a subset of transfers of said plurality of data words are traced within said trace data stream.

10. A computer program product carrying a computer program for controlling a data processing apparatus to analyse a trace data stream generated in accordance with the method of claim 9.